

median area and having a perfectly even margin all round. Underside like the male, only paler.

Expanse, ♂ ♀, 43 mm.

*Hab.* Kina Balu (Borneo).

I have two males and one female in my collection. It will follow *agelastus*, but the colour is quite different and also the black termen much narrower, whilst below the distinct spots of the catenulated stripe are a marked character.

XXXVI.—*On Shrews from British East Africa.*

By OLDFIELD THOMAS.

THE British Museum contains a number of skins and spirit-specimens of shrews from East Africa which have not hitherto been determined, and which prove nearly all to require description as new. The greater part of them have been presented to the National Collection by Dr. J. W. Gregory, Mr. F. J. Jackson, and Dr. and Mrs. Hinde, while isolated specimens have been contributed by Mr. Betton, Prof. Mackinder, Sir H. H. Johnston, Mr. R. J. Cuninghame, and Mr. R. Meinertzhagen, and to all these collectors our thanks are due for the help they have rendered towards an understanding of this most difficult and intricate group.

The species now dealt with are all true *Crociduræ*, for the *Pachyuræ* in the Museum are too few in number for any opinion to be expressed as to their determination and relationships. Of described species of *Pachyura* the only East-African one is *P. leucura*, Matsch.

The following is a provisional key to the species of *Crocidura* that I recognize in our collection :—

- A. Very large. Skull\* above 27 mm. . . . . *nyansæ*.
- B. Smaller. Skull below 25 mm.
  - a. Larger. Skull above 20 mm.
    - a<sup>1</sup>. Tail with numerous long bristles.
    - a<sup>2</sup>. Tail thick basally, tapering. Colour fawn or brown.
      - a<sup>3</sup>. Fawn. Fur about 5 mm. in length on back. Skull 23–24 mm. . . . . *Hindei*.
    - b<sup>3</sup>. Brown. Fur very short, about 2·5 mm. on the back . . . . . *velutina*.
  - b<sup>2</sup>. Tail more or less cylindrical. Colour grey or smoky.
    - a<sup>3</sup>. Larger, skull 22–23 mm. Underside of body and tail little lighter than upper . . . . . *fumosa*.

\* From back of condyle to front face of incisors.

- b*<sup>3</sup>. Smaller, skull 21 mm. Underside of body and tail much lighter than upper . . . . . *Jacksoni*.  
*b*<sup>1</sup>. Tail practically without longer bristles, as in *Myosorex*.  
*a*<sup>2</sup>. Skull 21 mm. Colour brown . . . . . *maurisca*.  
*b*. Smaller. Skull below 20 mm.  
*a*<sup>1</sup>. Brown. Tail over 45 mm.; skull 18·2–19·6 .. *Hildegardæ*.  
*b*<sup>1</sup>. Grey. Tail less than 45 mm.; skull 17·7 .... *Cuninghamei*.

*Crocidura gracilipes*, Peters, *C. Fischeri*, Pagenst., *C. nigrofusca*, Matsch., *C. sansibarica*, Neum., and *C. Martienseni*, Neum., I have not been able to identify.

The following are the descriptions of the new species:—

*Crocidura Hindei*, sp. n.

Size fairly large. Fur soft and fine; hairs of back about 5 mm. in length. General colour above pale reddish fawn, below dull buffy white, the colour of the under surface mounting rather high up on the sides. Upper surface of hands and feet dull white; fore and hind claws about equal in size, or the latter rather the larger. Lateral gland present, about halfway along the side. Tail very thick at base, rapidly tapering to a point, light brown above, dull whitish below; its long bristle-hairs numerous.

Teeth short and strong; unicuspid well overlapping each other, the two smaller ones broader than long, notched behind.

Dimensions of the type (measured in skin):—

Head and body (stretched) 95 mm.; tail 50; hind foot (s. u.) 14.

Skull: condylo-incisive length 24·3; greatest breadth 10·3; length of upper tooth-row 10·6; tip of *i*<sup>1</sup> to tip of *p*<sup>4</sup> 5·3.

A spirit-specimen (♂) has the head and body 79 mm.; tail 59; hind foot 14.

*Hab.* (of type). Machakos. Alt. 1700 m.

*Type.* Female. B.M. no. 1. 8. 7. 2. Collected 6 June 1901, and presented by Dr. S. L. Hinde. Two specimens from the type locality, and another, in spirit, obtained by Dr. J. W. Gregory at Karati, Konu Dist., E. Kikuyu.

*Crocidura velutina*, sp. n.

Size rather less than in *C. Hindei*. Fur close, very short, the hairs on the back only about 2·5–2·7 mm. in length. General colour above brown (rather greyer than “Prout’s brown”); below grey (near “olive”), the grey not extending high up on the sides, and passing imperceptibly into the brown of the sides. Upper surface of head and feet dull white;

hind claws rather longer than fore. Tail well provided with bristle-hairs, greyish brown above, little lighter below; its base probably incrassated, though on the dried skin this point cannot be positively ascertained.

Teeth of medium stoutness. Upper unicuspid not very broad, the last one without a notch behind.

Dimensions of the type (measured on the skin):—

Head and body 83 mm.; tail 47; hind foot (s. u.) 14.

Length of upper tooth-row 10·1;  $i^1$  to  $p^4$  5·1.

*Hab.* Usambara, German East Africa.

*Type.* B.M. no. 99. 6. 25. 1. Purchased.

This species appears to be related to *C. Hindei* in size and proportions of tail and teeth, but it differs by its browner colour and much shorter fur.

*Crocidura fumosa*, sp. n.

Size about as in *C. Hindei*, but feet and tail proportionally longer. Fur long and crisp; hairs of back 5·5–6 mm. in length. General colour above dark smoky greyish brown (as dark as "grey No. 3," but markedly browner), darkening nearly to black on the rump. Under surface similar, scarcely paler. Lateral gland small and inconspicuous, its hairs dark brown. Upper surface of hands and feet brown; hind claws longer than fore. Tail rather long, cylindrical, not incrassated at base, well provided with bristle-hairs; uniformly blackish brown above and below.

Skull as in *C. Hindei*, teeth rather lighter, and the unicuspid less overlapping, but there is considerable variation in this respect.

Dimensions of the type (measured in the flesh):—

Head and body 82 mm.; tail 57; hind foot 15; ear 10.

Skull: condylo-incisive length 22; greatest breadth 10; length of upper tooth-row 9·4;  $i^1$  to  $p^4$  4·9.

Dimensions of a specimen in spirit:—

Head and body 71 mm.; tail 50; hind foot 14·2.

*Hab.* (of type). Western slope of Mt. Kenya, 2600 m. Other specimens from Machakos and Fort Hall (*Hinde*), Nandi and Kakamega (*Jackson*), and Lagari (*Betton*).

*Type.* Male. B.M. no. 0. 2. 1. 8. Collected 18 September, 1899, by H. J. Mackinder. Four specimens.

This species, which is evidently widely spread in East Africa, is readily recognizable by its dark smoky colour and dark underside. From *C. nigrofusca*, Matsch., it differs by its much shorter tail.

*Crocidura Jacksoni*, sp. n.

Decidedly smaller than *C. fumosa*. Fur close and fine;

hairs of back about 4.5 mm. in length. General colour above dark smoky grey, indistinctly waved with a silvery lustre, the rump not darker than the back. Under surface "smoke-grey" of Ridgway, markedly lighter than the upper surface. Short hairs of lateral gland whitish. Upperside of hands and feet dull whitish. Tail well haired, with many bristles, dark slaty above, dull white below.

Skull smaller than that of *C. fumosa*, the teeth stout and strong.

Dimensions of the type:—

Head and body (stretched) 73 mm.; tail 51; hind foot (moistened) 13.

Skull: condylo-incisive length 21.1; greatest breadth 9.1; upper tooth-row 9.1;  $i^1$  to  $p^4$  4.7.

*Hab.* Ravine Station, British E. Africa.

*Type.* Female. B.M. no. 99. 8. 4. 27. Collected 17 February, 1896, and presented by F. J. Jackson. Four specimens.

This shrew is a smaller edition of *C. fumosa*, of about the same proportions, and with the underside of both body and tail lighter than the upper.

*Crocidura maurisca*, sp. n.

Size about as in *C. fumosa*. Fur close, crisp, and velvety; hairs of back about 4.8 mm. in length. General colour above dull chocolate-brown (approaching "seal-brown" of Ridgway); under surface but little lighter. Hands and feet dull brown above, the fore and hind claws subequal. A large lateral gland probably present in the male. Tail slender, cylindrical, closely haired, without longer bristles, except that there are two or three at its extreme base.

Skull very light and delicate, the brain-case high in proportion to its breadth.

Teeth small, the upper unicuspid scarcely overlapping; their cingula unusually prominent; anterior muzzle slender. Upper incisors very narrow when viewed from above; small unicuspid longer than broad, oval in section, not notched behind.

Dimensions of the type (measured in spirit before skinning):—

Head and body 75 mm.; tail 60; hind foot 14.4.

Skull: condylo-incisive length 20.7; greatest breadth 9.2; upper tooth-row 9.1;  $i^1$  to  $p^4$  4.8.

*Hab.* Entebbe, Uganda.

*Type.* Female. B.M. no. 1. 8. 9. 99. Collected by the late W. G. Doggett and presented by Sir Harry Johnston. One specimen.

This shrew is distinguishable by its dark brown colour,

slender bristleless tail, delicate skull, and small teeth. It is the species of those now described most like *C. gracilipes*, Peters, but that animal is said to have the posterior claws smaller than the anterior ones, and appears to differ in other details.

*Crocidura Hildegardæ*, sp. n.

Size comparatively small, form slender and delicate. Fur close and fine; hairs of back about 3·3–3·5 mm. in length. General colour above dull brown (approaching Prout's brown), rather greyer and lighter below. Upper surface of hands and feet pale brown. Lateral gland small, its hairs dull whitish. Tail slender, cylindrical, well provided with bristle-hairs, its colour brown above, rather paler below.

Skull of normal proportions. Teeth very light and delicate; main cusp of anterior incisor slender.

Dimensions of the type (measured in skin):—

Head and body (stretched) 78 mm.; tail 50; hind foot 12·5.

Skull: condylo-incisive length 19·6; greatest breadth 9; upper tooth-row 8;  $i^1$  to  $p^4$  4·1.

Two spirit-specimens (male and female) measure:—

Head and body 62 and 61 mm.; tail 49 and 47; hind foot 12·7 and 12·4.

*Hab.* Fort Hall, Kenya District. Alt. 1300 m.

*Type.* Probably male. B.M. no. 3. 2. 27. Original number 118. Collected 23 October, 1902, and presented by Dr. S. L. Hinde. One skin, besides two spirit-specimens obtained and presented by R. Meinertzhagen, Esq.

The small size and brown colour of this shrew will distinguish it from any species hitherto described.

The species is named in honour of Mrs. Hinde, the actual collector of a large proportion of the specimens presented in her husband's name.

*Crocidura Cuninghamei*, sp. n.

Size very small. Fur fine and velvety; hairs of back about 2·8 mm. in length. General colour above dark slaty grey, a rather browner tone on the posterior back. Undersurface pale drab-grey, not sharply defined. Upper surface of hands and feet dull whitish; fore and hind claws subequal. Lateral gland fairly large, its hairs grey. Tail rather long, well provided with bristle-hairs, which are black basally and white terminally; its ground-colour brown above, dull whitish below.

Skull smaller than in any of the previous species, though nevertheless larger than in the little Somali *C. Bottegi*, Thos.

Teeth not specially small, the unicuspsids well overlapping, the posterior ones notched behind.

Dimensions of the type (measured in the flesh):—

Head and body 60 mm.; tail 40; hind foot 11.

Skull: condylo-incisive length 17.7; greatest breadth 7.7; upper molar series 7.6;  $i^1$  to  $p^4$  3.7.

*Hab.* (of type). "Small uninhabited island one mile north of Sajitu Island, Victoria Nyanza." Another specimen from Kama Island.

*Type.* Female. B.M. no. 2. 7. 5. 6. Collected 29 December, 1901, and presented by R. J. Cuninghame, Esq.

This little shrew, which Mr. Cuninghame found on two islets in the Victoria Nyanza, is the smallest yet described from East Africa; but it is possible that allies of the still smaller species *C. nana*, Dobs., and *C. Bottegi*, Thos., will prove to occur there, even if there are no representatives of the pigmy shrews of the *C. madagascariensis* group.

#### BIBLIOGRAPHICAL NOTICES.

*A Natural History of the British Lepidoptera. A Textbook for Students and Collectors.* By J. W. TUTT, F.E.S. Vol. IV. With Synopsis of Contents of, and General Index to, Vols. I.—IV. Sonnenschein: April, 1904. Pp. xvii, 535. Portrait and pls. i., ii.

ANOTHER two years have passed since the publication of vol. iii. of Mr. Tutt's *magnum opus*, and we have again the pleasure of calling the attention of entomologists to the appearance of a fresh volume of the series. Five species of Sphingides were discussed in the latter part of vol. iii., and vol. iv. is devoted entirely to the twelve remaining species, supplementary notes, and a Catalogue of Palæarctic Sphingides. The Preface deals chiefly with questions of nomenclature, into which we cannot here enter; but we may note that, except as regards the two species of *Hemaris*, Mr. Tutt makes every one of our British species the type of a distinct genus; and in most cases he is certainly justified in this, though it was naturally unnecessary so long as little or nothing was known of the allied foreign species. But we do not see why Mr. Tutt should ignore Scopoli's genus *Macroglossum* (only quoting Oehsenheimer's late form, *Macroglossa*) and give *stellatarum* as the type of *Sesia*, Fabr., from which, we hold, Scopoli's action practically removed it. We cannot follow his reasoning in vol. iii. p. 344 and note. The long account of the habits of this well-known species (the Hummingbird Hawk-Moth) in vol. iv. is very interesting. Much information is also given about the hybrids between *Celerio gallii* and *Hyles euphorbiæ* (we do not, however, see why the *laps. cal.* of *gallii* for *gallii* need be retained).